



Chambers's Journal

SIXTH SERIES.

CRICKET CAPTAINCY.



REALLY good captain will first win the toss and then win the match ; but such captains, like good single-gut salmon-casts, are rare.

It may be interesting to begin this article with a subject hitherto untouched in the chronicles of cricket. I refer to the Bogy-man. He is to be found in every cricket circle ; but he is most frequently to be met with amongst the public school elevens—at Eton, Harrow, Fettes, or Loretto. It comes about in this way. One boy at Eton will remark to another, 'Have you heard of the new Harrow bowler ? He can make a ball break both ways, and can send you down a shooter at any time he pleases.' That's the Bogy-man ; and the story spreads from public school to public school until this fortunate Harrow bowler is well upon the way to getting out the tail of the other public school elevens he may play against before they have put on their pads and come in to the wicket to take guard. Then there are many well-known cricketers I could name who keep a private Bogy-man of their own, as other men keep a private hansom-cab.

I remember a captain of Loretto School—he afterwards got into the Oxford eleven, and was for a time one of the most reliable batsmen playing for the county of Middlesex—who would tell you that he couldn't play some professional bowler, perhaps naming one in the Lancashire or Nottinghamshire eleven ; but when the match came off, and he had played a few overs from his Bogy-man, the bogey element vanished, and the scoring-board told a different tale.

Perhaps no man has ever bowled better for England than A. G. Steel. Playing against him once, I had upon my side his brother, D. Q. Steel. Winning the toss, we sent him in first ; and in the opening over he hit A. G. out of the ground for six, making in all some seventy runs, and we won the match. I think that six in the first over did it ; but, you see, brothers never will believe in the Bogy-man.

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It may be that there is some bowler you fear. When you go in to bat make the best use of your height ; play without affectation, with patience, with a straight bat ; and this bowler you fear may after all prove to be only a Bogy-man.

It has fallen to my lot to captain many cricket elevens, sometimes playing forty matches in a single season ; and, recalling the memories of thirty years, I am impressed with one thing—that if you are to be successful as a captain you must rely upon yourself. No one in your eleven can tell you at the critical moment what to do, for the simple reason that no one has to follow the game with the same attention. No other has the responsibility. It is the responsibility that fixes your attention. I have sometimes captained an eleven with the year's captain of the Oxford or Cambridge University eleven upon my side. Here, you would say, was an excellent opportunity for what the doctors in Harley Street call a consultation ; you need not trouble yourself. Should you ask the captain of the light-blues or the dark-blues, it is not unlikely you will find he has been watching a drift of cloud, and thinking how it resembled the smoke from the cigarette he threw away when he left the pavilion.

You have to deal with two batsmen ; and from your mind there must never be absent the one thought how you are to get them out. They are like two men who have come up for an examination, and you wish to pluck them. You may pluck them upon papers they have been reading for months ; but your best chance will be to question them upon some subject unthought of by their coach. If they have been accustomed to fast and medium pace bowling, give them slow round-arm ; if to slow and medium pace bowling, give them fast bowling—the faster the better.

Perhaps you had the good fortune to be at Lord's cricket-ground upon the 12th of July last year, when D. L. A. Jephson bowled for the Gentlemen of England against the Players. From Jephson's first over it was evident that a paper had been discovered which the professional

players had neglected to read ; and the under-hand bowler plucked them one after the other. His analysis cannot too often be written down : 18 overs, 7 maidens, 21 runs, 6 wickets. Now that he has been elected captain of the Surrey eleven, let us hope he may occasionally put himself on to bowl first ; it will save time, taking the advice which *Priscilla*, the Puritan maiden of Plymouth, gave to *John Alden*—to 'speak for himself.'

If you are to have the captaincy of an eleven, the eleven should be chosen by yourself. If you are to captain *Winchester*, *Rugby*, *Trinity College* (*Glenalmond*), or *Blair Lodge*, it is by you that the eleven should be selected. *Lancelot* should choose his lance for the tournament, and no other. If you wish the best possible eleven for *Surrey* or *Lancashire*, leave the selection to the captain. I will go further, and say that if the eleven has to be chosen to play against the *Australians*, it will be best chosen by the man who is to captain the team. Naturally enough, you say to me, 'What about a committee?' There is a certain place that will be found to be paved with many things ; one will be committees. I have had my share of them. I have been one of three chosen at a gathering of the cricket clans to choose elevens for certain matches. It works in this way : three men have been selected from the *Surrey* eleven ; two men are brought forward from *Lancashire*, and as the *Lancashire* captain voted for the three *Surrey* men, one good turn deserves another, and the *Surrey* captain votes for the two *Lancashire* men. It may seem an exaggeration of the circumstance to put it in this way ; but I fear that more or less it is the truth. If you wish anything mismanaged, put it into the hands of a committee. In the event of *Lord Hawke*, captain of *Yorkshire*, being elected to the captaincy of a team against the *Australians*, I would rather leave the selection of the team to him than to any committee in England. *Trafalgar*, *Waterloo*, the long series of victories in the *Franco-Prussian* war, were not the work of committees ; these victories were in each case won by one man, unfettered, working upon his own responsibility.

When your team are practising batting, there should not be too many men bowling at one time ; never more than three. The difficulty is to get men to play in practice as they play in a match. 'Play every ball you get in practice as you would play the first ball you receive in a match,' should be written up on the walls of the pavilion of every public school in England. If you are to have two bowlers, choose a fast and a slow. I once batted in practice through the whole of a cricket season to three fairly good professional bowlers—a fast, a slow, and a medium pace ; the result of this was that in a match I had a difficulty in finding the ball with which to get out. I had to create the occasion for getting

out—an episode in our cricket career with which we are all only too familiar.

Encourage your men to practise bowling, especially those amongst them who are bad bowlers. Every man in an eleven should be able to bowl. I am not sure but that there is altogether too much attention paid to the good bowlers ; in fact, I have known captains who never gave the bad ones a chance until the match was lost, when they would discover, too late, the error of their ways. When you have the captaincy of a team, try a bad bowler occasionally—just for an over ; bad bowling sometimes produces wonderfully bad batting. The converse of the proposition is also true, that good bowling is apt to produce first-class batting. The great thing, after all, that we have to bear in mind is that we do not wish to 'set' the batsman ; we wish to get him out. When I was taught to play whist I was told that if I was in doubt I was to play trumps ; when you are in doubt change your bowlers.

If you are a schoolmaster at a public school, and have the opportunity to teach boys to bowl, let them first learn to bowl a good length, then show them how to make a ball break from leg, and then how to make it break from the off. When you teach them this as you teach them *Greek* and *mathematics* we shall again see *England* beating *Australia*, and not the fiasco of last year, when we were told that *England* was waiting for bad wickets. I am glad to say that *England* waited in vain.

It is not difficult to get men to practise batting and bowling ; the trouble is to get them to practise fielding. The headmaster of *Loretto School* always gave the preference to a boy for the eleven who was a good fielder. He used to say it was all very well for a boy to go in and make thirty runs ; but if he dropped one or two catches, resulting in three times his score being made by some batsman upon the other side, it is to be doubted if he was a profitable venture for his side. Every member of an eleven should practise catching for a few minutes each day throughout the season. I remember a fielder at mid-off—of all places the easiest in which to hold a catch—dropping one that came to him medium pace and not too high. He informed me afterwards that it was the first catch of any sort he had had that season. I told him that the long-suffering *Robespierre* had sent many a man to the guillotine for less.

As captain you must have courage, like *D'Artagnan* or *Hervé Riel* (there was no fear in 'those frank eyes of Breton blue'). You must never know what it is to be beaten.

In cricket it is at times hard to say when we are beaten. Playing once at *Partick* against the *West of Scotland*, we won the toss ; and, going in first, were all out for some sixty runs. To make matters worse, they succeeded in getting twenty runs without the loss of a wicket. Forty

runs to be got, and ten wickets to fall. One of their team, J. S. Carrick, held the record for the highest score in a single innings. We changed the bowling at each end, put on a slow round-arm bowler at one end and a fast underhand bowler at the other; and in little more than an hour they were all out, and we had won the match with a few runs to spare. The slow bowler was A. R. Don Wauchope, famous in the story of Rugby football; and the fast underhand bowler was Gordon Caldwell, the first winner of the Spencer Cup for Trinity College (Glenalmond).

Sometimes our courage is tested to the point that we have to call our philosophy to our aid. The Sheriff-Substitute of Dumfries and myself once distinguished ourselves in a match against the county of Peebles, and we were asked to play for them in the most important match of the season. It was a county match, so we could not refuse; but we proved a sad disappointment to the county of Peebles, as in four innings we failed to contribute a solitary run to their score. The good people of Peebles never asked us to play for them again. I trust that such a painful reminiscence may never be yours; but if by any chance it should, you must not be down-hearted. Next morning you will find that the omnibuses are running in Piccadilly all the same.

When your bowlers have pointed out to the fielders the positions in which they wish them to stand, you must be on your guard, and see that they keep in their places. Some men will move if they get the chance, especially if they have to field out a long innings played by a left-hand bat like F. G. J. Ford. The continual moving for the single run upsets them like a seaway.

With regard to the order of going in, you will find it interesting to place a number opposite to the name of each member of your side, so to speak, as representing his value. In this way, your most reliable batsman will be represented by the number eleven, your second best by the number

ten, and so down to the last man, who will be distinguished by the unit. The most difficult bowling will come in the first hour or two, so send in your best batsmen to meet it. Do not send in first numbers eleven and seven; send in eleven and ten. Lord Roberts will tell you that ten battalions are better than seven. It frequently happens that in the last innings you have to get a certain number of runs in a limited time. Number six is a mighty hitter without much defence, and some one may suggest that you should send him in. It is a fine point; for my own part, I would rather send in eleven and ten, and tell them to force the pace.

I have many times been asked the question as to where to place a really bad fielder; the stereotyped answer is, 'Put him short-leg.' The unspeakable tragedies we have all witnessed at short-leg! There is a pathos about it all, for short-leg is always very sorry, and he has the sympathy of every one on the field. I write it down in sorrow; but it may be that the best thing to do with a really bad fielder is just to store him in the pavilion.

When you leave school or college start a cricket-club for yourself, and captain it to your heart's content. It need not be a very costly affair. The Vicar of Stratford-on-Avon and I once started a cricket-club; he had just left Christ Church, Oxford, and possessed a blue coat. Being frugal, we made the colours of the club blue, and so saved the cost of a coat.

What a game cricket is! How we love it, following it as the children in Hamelin followed the Pied Piper! Think of the friends it has given you. We could write down the names of captains of the public schools, of the universities, the names of men now in South Africa; but that may not be:

We that had loved him so, followed him, honoured him;
Lived in his mild and magnificent eye;
Learned his great language, caught his clear accents,
Made him our pattern to live and to die.

OUR LADY OF DELIVERANCE.

CHAPTER V.—MDLLE. X.: HER HOME.



BETTER introduction to the village of Cour-des-Comptes no man could have had, and I had good reason to congratulate myself on the moment when Louis Vaudre came upon me in the dark road leading from the station.

'Is monsieur fond of fishing?' asked Vaudre, in his big bass voice.

'I'm a fisherman when I get the chance, M. Vaudre. Do you get good sport here?'

'You come down to me—anybody'll show you where I live—and I'll show you what we can

do, monsieur. If any one knows how to fish the Vilaine, it is I, Prudent Vaudre.'

'That's a bargain, then,' I said. 'I shall come to-morrow.'

'Good,' said he. 'We shall have rare times, you and I.'

Nothing could possibly have suited my plans better. Vaudre's offer had put into my hand the key of the country-side. Henceforth I was free to wander whithersoever I would without question, for the rod in my hand would frank me in advance to any would-be questioner.

My guests rose to depart in a body, all except

Vaurel and Louis Vard. Madame had already retired, and Jeanne's bright eyes were like sleepy stars. Then, with renewed injunctions to me to come down to his house in the morning, Vaurel went singing down the road, and I became aware of the fact that I was the no-company third to Louis and Jeanne. So, with hearty thanks to Louis for his kind offices during the evening, I begged Jeanne to show me to my room, and left Louis awaiting her return.

From certain indications I judged it was Jeanne's own room and bed in which I slept; but it was none the less comfortable on that account. It was a square, heavy-looking little room, by dim candle-light at all events, panelled to the ceiling in dark oak, and behind the heavy panels, richly carved in rough arabesques, were the beds, identical with the box-beds of my native land. The only furniture consisted of two great carved black oak chests and a small square looking-glass hanging on the wall.

Well satisfied with the day's work, I slept splendidly. I washed next morning in the back garden in a bucket of water drawn by Jeanne from the well, enjoyed a big bowl of excellent milk-coffee she had prepared for me, with the freshest of butter and the brownest of bread, and then asked her how I should find Vaurel's house by the river.

I would have liked to ask her many more questions concerning Mdlle. X., but deemed it best to go slowly in the matter and not give any indications of the real reason for my being there.

Jeanne herself, however, incidentally introduced the subject.

'Shall I put you to any inconvenience, Mademoiselle Jeanne, if I stay here a day or two?' I asked.

'No, monsieur; we shall be delighted, and there is no inconvenience whatever. You did the old ones good last night. It was a pleasure to see them so cheerful.'

'They are not generally cheerful, then?'

'*Mon dieu, no!*'—she shook her head—'not of late. You see, monsieur, the season has been a bad one, the crops were bad, and the cider was not good; and altogether things have not been bright in the country here. It may be better now that mademoiselle has come'—

She broke off short; but this was a subject I had no objection to her pursuing.

'Mademoiselle? Who is she?'

'Mademoiselle at the Château,' and then the pretty lips closed tight.

'Ah! She may make things better? How is that?'

'She is very charitable. She won't let the people go short if she knows it.'

'And she will be sure to hear of it?'

'Oh, she must hear of it. It is my aunt who is housekeeper at the Château, and my cousin Hortense who acts as mademoiselle's maid when she is here. She is a very pretty girl.'

'Who? Hortense or mademoiselle?'

'Oh monsieur! I meant Hortense. Mademoiselle is altogether lovely; but different, of course, from us others.'

'This seems a country of pretty girls, Jeanne,' I said; at which Jeanne's eyes laughed and her lips showed a gleam of white teeth. 'Well, I will go and find M. Vaurel, and see what sport he can offer me. I shall ask him to join me at dinner—shall we say at six o'clock? And if you see M. Louis, Jeanne!—and Jeanne's eyes twinkled as though she thought it by no means improbable—you might beg him, with my compliments, to join us. I feel greatly indebted to him.'

'*Merci, monsieur!*' said Jeanne, and I went off down the road.

Through the village square, where I was an object of curiosity to the white-capped women—a packet of the best tobacco to be had at the tobacconist's, and it was not very good—then along a rough high-banked road which crept through the woods along the side of the hill, then a sudden turn and a rapid descent among the trees towards the noise of running waters and the monotonous thud, thud! thud, thud! of a waterwheel, and at last I was on the river-bank and found myself in front of a queer little rough-stone house, the door of which stood wide.

I knocked and called, 'M. Vaurel,' but got no answer; so I lit a cigar and sat down on the wooden bench to await the owner's return.

The water here flowed deep and smooth, and reflected as in a dark mirror the foliage of the steep wooded banks, which were, indeed, almost hillsides. About two hundred yards farther down, the smooth water fell over a weir, and at one side stood the mill, the soft monotonous thudding and buzzing of whose wheels detracted no more from the peacefulness of things than would the humming of a bee. After serving the mill, the broken water swept round in a wide curve, and the high wooded banks stood far back; and there, in the green strath between the hills and the river, stood a great house, undoubtedly the Château where Mdlle. X. was living. If the little stone house had been built for the purpose of keeping an eye on the Château, it could not have been better placed. I decided that M. Vaurel and I should be very good friends.

While I was still enjoying the prospect through the smoke of my cigar, a trumpet-like hail from across the water announced the arrival of friend Vaurel.

'*Hola, monsieur! Bon jour! bon jour!* We shall be across in a moment. *Allons, Boulot, mon petit!*'

He was in a flat-bottomed punt by this time, and came poling across the river; and, as the projecting nose of the punt ran up on to the shelving bank, a most formidable-looking bulldog, with the bandiest of legs, a massive head, and a repulsively-perfect face, scrambled hurriedly ashore, and came

running up to the house, without ever looking back towards his master.

'Come back, Boulot, beast ! pig !—Have a care, monsieur ; he is not good with strangers !' cried Vaurel.

But I was a dog-lover, and had no fear of him.

'Well, Bully, old man,' I said, 'come along and make friends ;' and surely if he was not English-born his ancestors were, for the purposeful eyes blinked at the word and the stout little tail gave a friendly wag. He sniffed twice at me just by way of making a show of doing his duty, then the great front-paws came up on my knee and Bully's tremendous face was almost alongside mine, and he seemed to be wanting to say, 'Speak to me again in the tongue of my forebears. Your words stir something inside of me. Surely I too come of the British race.' Boulot and I were friends.

'*Tiens !*' said Vaurel as he came up the slope swinging a brace of wood-pigeons in his hand, and dimly perceiving something of all this, 'Boulot's English blood is stirred at sight of you. He frightens most people.'

'We are going to be very good friends,' I said. 'Who lives in the big house over there, M. Vaurel ?'

'That is the family seat of the Des Comptes, monsieur ; they own all the country round here.'

'Really. They must be wealthy. I should have thought rich people like that would live in Paris.'

'So they do mostly ; but sometimes they come here.'

'Anybody there just now ? Can one go over the house ?'

I saw by his manner that he wished to avoid the answer I wanted, and this constant evasion of reference to Mademoiselle des Comptes puzzled me greatly, and only served to put a keener edge on my desire for information.

'The house is occupied just now,' he said at last ; 'perhaps if monsieur stays long enough the opportunity may come.'

'Ah ! the family is there perhaps—monsieur and madame ?' I queried.

'Monsieur lies at Sedan. We were all through the war together. But the cursed Prussians killed him there, and did their best for me,' and he nodded at his empty sleeve. 'We were together ; that is why I live here and have the freedom of the woods and waters over all the country-side.'

'I see,' I nodded, and again deemed it wise not to push him too hard at the moment. I was learning bit by bit, and it was no good trying to go too fast. 'It is a charming situation,' I said, 'and you ought to be happy here. How did you get the pigeons ?'

'I shot them,' he said, handing me the birds and producing from his pocket a long-barrelled revolver. 'Because M. des Comptes was shot by those pigs of Prussians at Sedan I shoot his wood-

pigeons here, and hook his fish, and live in this house of his. Monsieur has not breakfasted yet ?'

'No. I'm hoping to have one of those pigeons for breakfast,' I said.

'That's it, that's it, exactly,' he said ; 'fresh trout from the river and plump wood-pigeons make a feast for a king.'

'And for dinner, I hope you will join me at Madame Thibaud's, M. Vaurel. I have asked Mademoiselle Jeanne to be ready for us at six.'

'Good !' said the burly one. 'Monsieur is a godsend in this quiet place.'

We got on admirably, Vaurel and I. He turned out a capital breakfast, and the brown bread and cider only threw into greater relief the excellent qualities of the trout and the wood-pigeons.

'Did you take Père Golot the promised fish ?' I asked while we were eating. 'I felt quite sorry for the poor old fellow. He looked as if he had had hard times.'

'Yes,' he said ; 'he suffered more than most. His three boys went to the war, and none came back—not one. Yes, I took him his fish. We do what we can for him ; but the season has been bad. Now, however, that mademoiselle—'

I listened with all my ears, though with no show of eagerness ; but he broke off short and turned the subject.

After breakfast and a smoke we fished below the weir, and had a fair afternoon's sport. Boulot accompanied us with extreme reluctance, and sat afar off sniffing and snuffing dismally, with quick apprehensive glances at his master whenever by any chance he came anywhere near him ; and it was only when at last we returned to the house and laid aside our rods, and with our string of trout turned up the path through the woods towards the village, that he showed any signs of the enjoyment of life and ran on briskly in front.

'Come back, pig, Prussian, old bandy-legs ! Come back, and take care of the house !' shouted his master ; but Master Boulot paddled resolutely forward with determination in his tail, and never even looked round at him. 'Very well, then ; don't if you won't. I shall throw you in the water again some day ;' and at that the brindled legs twinkled the faster, and Boulot disappeared round a turn of the road.

'He hates the water as the crows say the devil hates holy water. I threw him into the river for a wash one day, and he wouldn't speak to me for a week. He scares the children and the fools up above here, so I generally keep him away from them ; but it shows what good friends we are that he consents to live so near the water. He heard you talk of dinner and doesn't want to miss the chance.'

'Has he ever bitten any of them ?'

'Not he. He wouldn't bite them to save their lives ; but they always think he looks as if he was just going to. He killed the sheep-dog at the Abbey Farm not long since, though—a big fierce

brute that was bad to the sheep ; and since then the folks are more frightened of Boulot than ever.'

'Where did you get him ?'

'It was at Wörth. He was very young then. He was sitting whimpering by his master's dead body, an Englishman who fought on our side, three days after the battle. He was starving, and I gave him all I had, and buried his master, and he has never left me since. He was at Sedan too, and stood between my legs when the Prussians closed in on us for the last time, on the hill

there. Heigh-ho ! they were bad times those. *Mon dieu !* the things I saw that day. Now, monsieur, if you will go on to Mère Thibaud's and take her those—handing me a small string of the trout—'I will leave these at the Château for mademoiselle. I must pay my respects to her.'

'I'll come with you,' I suggested ingenuously.

'No, pardon me, monsieur ; it is necessary that I go alone.'

'All right. I'll go and hurry up Jeanne and the dinner.'

OUR TOWN AND CITY GATES.

By SARAH WILSON.



ALTHOUGH all but a very few of the strong, high, wide stone walls that once surrounded and defended the most considerable of our old towns and cities have disappeared, there yet remain for us a great many of the gates with which they were provided for ingress or egress. Curiously, in the demolition of walls from time to time these gates have often been spared ; and we may still admire their strength, resources, and picturesque appearance, though they are generally shorn of their original adjuncts of moats, drawbridges, portcullises, barbicans, and stone statues of defenders. In a few instances, on the other hand, as at Rochester and Exeter, they have been taken down and portions of the wall left standing ; and in some places those that remain are threatened with removal, even now, on account of the obstruction to traffic they occasion ; but for the most part they are looked upon, locally, as legacies from the past that should be carefully preserved.

A large city had as many as six or seven gateways, besides posterns ; those of less consequence had four, or three, according, apparently, to their degree. It is curious to glance at their most frequent designations. They were, often, indicative of their situation with reference to the points of the compass—Eastgate, Westgate, Northgate, and Southgate being frequent names. The Highgate, the Lowgate, the Broadgate, the Narrowgate, the New, the Old, and the Shore gate were further familiar distinctions. Kingsgate is not unusual. Fishgate and Cowgate occur more than once. Bridgegate is another in general use where a bridge gave access to a town or city.

Newcastle-upon-Tyne was one of the cities that had seven chief gateways in its great encompassing wall. There are old maps extant showing their positions and giving their names ; but they have disappeared as completely as the groups of equestrians and pedestrians, the strings of packhorses and the rumbling, massy-wheeled vehicles, that used to pass through them. Several lengths of the wall, however, are left in various parts of the ever-extending city, which are evidence that

it was more than twenty feet high in some parts, and eight feet thick.

The heads and quarters of traitors, it will be remembered, were exposed on city gates. On one of the Newcastle gates was exposed one quarter of the body of the brave and gallant Hotspur. His head was sent to the gateway on London Bridge, with one quarter of the body of Earl Bardolf, and his other quarters to York, Lincoln, and Berwick-on-Tweed. Lincoln was selected for the head of Earl Bardolf. The writs to the various authorities ordered the exposures to be made upon the gates in the manner which in like cases had been accustomed to be done. Four months afterwards fresh writs were issued, by the king's command, that the heads and quarters thus distributed should be delivered up for holy sepulture.

York has preserved its gates as well as its walls. There are four of them, called by their builders and defenders Micklegate Bar, Bootham Bar, Monk Bar, and Walmgate Bar. Micklegate was the one chosen for the exposure of the remains of those who had suffered for treason down to the execution of the vanquished at Culloden. Until 1827 it retained its barbican. The barbican doors leading out on to the top of the walls still remain. The stone figures on the topmost parapets have been also permitted to stand, and the arms of France as well as those of England are still displayed. Bootham Bar has likewise lost its barbican, but still possesses its portcullis, and its stone figures have been renewed. Monk Bar continues to display the arms of France as well as those of England ; and, though it has lost its barbican, it still possesses its stone statues of defenders and its portcullis. Walmgate has been less tampered with than the rest on its outer side ; for it has its barbican, embattlements, portcullis, and strong gates. Its inner side, however, was so far modernised in the last century as to have a new two-storied front thrown out from it made of timber and plaster, not resting on the ground, but supported at the necessary height over the archway by two strong stone columns.

Berwick-on-Tweed had likewise four gates; but only three remain—Scotchgate, Shoregate, and Cowgate. The fourth, now lost, was Bridgegate. Shoregate and Cowgate still possess their ancient wooden gates, with their massive bolts and hinges.

London had seven double gates in medieval times. Topographers going over the ground in the last century mention fifteen, in which number they probably included posterns. They have been taken down, but there are many particulars about them in the writings of early antiquaries. A twelfth-century authority, William FitzStephen, tells us there were many turrets on the wall round the city, which on the south side had been cast down and washed away by the Thames in his day. As at Lincoln, the first wall and gates were made by the Romans. They built the wall about nine feet thick, with Roman bricks or tiles; and they made four gates—Aldgate, Aldersgate, Ludgate, and Bridgegate. In the last century, notwithstanding the Great Fire and the ceaseless stream of improvements, there were various fragments of the medieval wall standing. At the end of Gravel Lane, for instance, one of the towers remained, though much decayed. Still earlier, in Pepys's time, we come across frequent mention of it. In an entry in his *Diary* recording the breaking down of his coach, which was mended by a smith for six shillings, he set down, 'Away round by the wall and Cowgate, for fear it should break again.' The poet Chaucer lived in one of the city gates, and his agreement with the Lord Mayor and Corporation is still among the municipal possessions.

Chester, also a Roman city originally, and where the medieval walls are carefully maintained, had likewise four gates—East, West, South, and New gates. Dr Johnson mentioned in his account of Shrewsbury, when he visited that town on his way to Wales, that the walls there were broken and narrower than those of Chester. In 1731 three gates were standing in Coventry—Portgate, Chilmersgate, and Newgate. A view of the town at that date shows a length of the wall extending from one to the other of them. In an engraving dated 1822 we may see one of the Exeter gates was then standing. It was richly wrought with carved work on the arch over the passage-way, and on the second story there were two cusped windows with elaborate mouldings, one on either side of a central niche, in which was a sculptured figure. The upper story had been somewhat modernised with diamond-paned lattices, but the whole was a faithful record of the stalwart men who defended and guarded it. A low doorway gave access to a narrow spiral stair, by which they ascended to the upper stories. Concerning another of the old gates in Exeter—Southgate—there has been handed down word of a tragic incident of the days of Edward I. A certain precentor, Walter Lichdale, was murdered; and on the particular night of the commission of this crime the Southgate was left open, and the murderer or murderers passed out of

it and got away. For this negligence, the Mayor, Alfred Duport, and the porter were hanged.

Sandwich has preserved only one of its most ancient gates—Fishergate; but it has another of quaintest aspect, which has low flint-chequered towers with conical roofs of Tudor workmanship, called the Barbican, though it is not one in the usual acceptation of the word. This town was once the great point of departure for the Continent Kings and nobles, with their armies and followers, set out from it and returned to it. Richard Coeur de Lion walked barefoot from it to Canterbury in gratitude for his deliverance from foreign durance and safe home-coming. Thomas à Beckett landed there after his last, long absence in France on the occasion of his final quarrel with his royal master, and remained in the neighbourhood for some days before he went on to his death at Canterbury. And the great stalwart gateway still stands that looked down upon all the coming and going. It is built of flint and stone, having two upper stories, with a large mullioned and transomed window in each, besides another in the apex of the gable, lighted by a smaller opening, and is a worthy entrance to the medieval *cinqe port*. The entrancing features of the dreamy town, its hoary churches, ancient houses made of timber framework with projecting stories and gables, its narrow streets, old gardens, open water-way called the Delf, and bulwarks kept pleasantly green and neat for a promenade, seem of one accord with it. The towers usually placed on either side of the central archways were not considered necessary in this case, and the general aspect is less military in consequence, though there are arrow-slits on each side of the largest window, now filled up.

There were six gates opening out of the wall round Canterbury. Only one of them—Westgate—is preserved. It has two tall round-towers, one on either side of the archway, and between them, high up above the second story, is corbelled out a strong parapet, from which, we may be sure, its defenders in old times would have met with very prompt measures any hostile attempt to approach the gate. It carries us back to the old days, when other men besides Richard Coeur de Lion walked barefoot into Canterbury with great emotion, perhaps in penance, perhaps with thanksgiving; and when thousands of pilgrims flocked to the city who must have looked up at its gray massiveness and commanding aspect with the same admiration as our own. As well as sun-dried and windworn-gabled houses and mellow-tinted old churches, there is the grand cathedral close by, radiant with its tiers of canopied niches, sculptured figures, tapering finials, glancing lights upon its traceried windows and upon the noble altitude of its towers, and with all the pathos of the Black Prince's tomb sealed in it, and all the unravelled mysteries of its legends and history; and yet this fine old gateway holds its own with dignity.

Winchelsea has preserved three old gateways—Pipewellgate, Newgate, and Strandgate. They command the principal approaches to the ancient town, in which there are many other antique features that give it an indescribable charm. A gateway in another of the Cinque Ports—Rye—has round-towers on either hand, of the same massive, reticent character as those that defend the Westgate at Canterbury, as well as a similar corbelling of the parapet overhanging the passageway; and though houses and shops are now built up close to it, there is an expression of inert resistance to French invasion, which, together with the drift of the historical incidents of French burnings and other indications of more recent date, gives the place a character of its own.

In several instances, when no longer required for the safety of the town, these old gateways were used as prisons. Canterbury thus utilised its west gate. Alnwick used one for this purpose (deserters were confined in it in 1755) and another for a poorhouse, and meetings of some of the trade guilds were held in it late in the last century.

Alnwick was the only town that was walled between Newcastle-upon-Tyne and Berwick-on-Tweed, and it was not furnished with this protection till the fifteenth century was well advanced. Among the Corporation records are documents which inform us that Henry the Sixth, in consideration of the burning of the town by the Scots, and its dangerously open situation, gave the Earl of Northumberland and the burgesses of Alnwick leave to enclose it with a wall with embattlements and machicolations. The work was commenced forthwith, but not much progress had been made when the Scots appeared on the scene again and burnt the town once more. A petition was next sent up to the king praying that, by way of plentiful alms, he would remit the fees for the sealing of the license. A second charter, signed at Bamborough in the forty-second year of his reign, sets forth that, as his humble and faithful lieges had been robbed and spoiled of all their movable goods, and their houses and mansions burnt, he would grant them various privileges, duly enumerated, towards the making of a port at Alnmouth, the establishment of a market, two annual fairs, the building of the town wall, and the reparation of the parish church. Another document details how two men were commissioned, in the next reign, to solicit alms for the completion of the town wall 'against the Scots,' on account of the loss of Berwick-on-Tweed, which had left the country greatly impoverished and weakened. At last the wall was completed, about a mile in circumference, twenty feet high, and six feet wide, with four massive gateways opening through it—Bondgate, Pottergate, Narrowgate, and Clayport. The two latter have been taken down; Pottergate was rebuilt, ornately, in the last century; but Bondgate still stands unimpaired, except for the touches time and weather give to all

things. It is built with huge hewn stones, and composed of two three-storied, semi-octagonal towers, having a central archway between them, of a width calculated to admit two horsemen abreast. The window-openings of the towers facing the country are only a few inches across, and the sole ornamentation is a panel over the archway carved with the Brabant lion, a badge of the second Earl Percy. The machicolations are above this panel, and are not continued on the towers. Nor is there any trace of a barbican. On the sides of the towers we can still see where the walls commenced. The window-openings on the side looking into the town are large and mullioned.

Antiquaries have ascertained that in many instances before the stone walls were built, in medieval times, there were earthworks and ditches that were but developments of those the ancient Britons made round their clusters of hut-circles. These not proving sufficient, royal licenses were obtained for the erection of stone walls, such as the Romans had built in so many places, and tolls were granted to defray the expense. Close within these walls ran a narrow lane or street, from which access was easy. On the outer side was often a ditch or moat. On the top was a path wide enough for two persons to walk side by side, protected by an embrasured parapet. At intervals were towers; between the towers were smaller turrets; and facing the great roads of approach were the gateways, which had passageways sufficiently wide and high for two armed horsemen to ride through abreast, and which were generally defended by a tower on either side of them, sometimes round, as at Canterbury, and occasionally of a semi-octagonal form, as at Alnwick. Oxford is an example that affords much gratification. It is stated in Domesday Book that there were twenty mural mansions there exempt from house-tax, because they were charged with the repair of the city walls. As there are no traces of such early walling, it is concluded they must have been palisades and earthworks. It was Henry III. who granted the necessary license for the building of the stone wall. This, antiquaries make sure, was of an irregular loop-like form, and joined the castle wall, for there are sufficient remains of it to trace its course. On the top was the usual walk. Close within was the narrow lane for access; and close without on the north side was a ditch, to continue the defence afforded by rivers at other portions. The towers are thought likely to have contained the indispensable stairs, as there are no remains of steps elsewhere. There were four gates—Northgate, Southgate, Eastgate, and Westgate. In the lifetime of William of Wykeham a bargain was made with the city authorities to keep a certain length of the wall in repair on condition that the narrow lane close within it might be thrown into the grounds of his New College; and this agreement has been so faithfully

kept that we may still view the battlements and towers in good condition along the space in question. An antiquary of Stuart times speaks of the Northgate as giving delight to strangers on account of its strength and beauty, and mentions

that it was used as a prison not only for debtors and malefactors, but for scholars 'for little faults.' Cranmer, Ridley, and Latimer were detained in it previous to their martyrdom. Only the sites remain of this and the other Oxford gates.

A R R E C I F O S.

CHAPTER IV.—IN ARRECIFOS LAGOON.

HE *Mahina* had rounded the south-eastern end of New Caledonia ten days after leaving Sydney, and was steering a northerly course between the New Hebrides group and the great archipelago of the Solomon Islands for Arrecifos Lagoon. During these ten days Barry had had time to study Captain Rawlings and the rest of the ship's company, and had come to the conclusion that there was some mystery attached to both ship and crew. The latter, with the exception of the boatswain, who was a dark-faced, ear-ringed Greek, and the four new white hands brought on board by the captain, were all natives of various islands of the Equatorial Pacific. Seven of the twelve—with two of the white men—were in Barry's watch; Barradas had the rest.

Among Barry's men was a stalwart young native, much lighter in colour than the others, very quiet in his demeanour, but willing and cheerful. His name—so he told Barry—was Velo, and he was a native of Manono, in the Samoan group. For the past four or five years he had been wandering to and fro among the islands of the Pacific, his last voyage being made in a luckless Hobart Town whaleship, which he had left at Sydney in disgust and without a penny in his pocket. Like Barry, he had been attracted to the *Mahina* by the fact of her being engaged in the island trade, and, indeed, had only joined her two days before Barry himself. His cheerful, ingenuous manner, combined with his smart seamanship, made the chief officer take a great liking to him; and even Barradas, gruff and surly, and ever ready to deal out a blow, admitted that Velo was, next to the boatswain, the best sailor-man of all the crew.

On the second day out the strong westerly breeze had failed, and was succeeded by light and variable airs, much to Rawlings's anger. Walking the poop one day with Barry, he gave vent to such a sudden outburst of rage and blasphemy at the little progress made by the brig that the chief-officer gazed at him in astonishment. However, on the morning of the fourth day a steady breeze set in, and Rawlings's equanimity was restored. His anxiety to make a quick passage was very evident; yet when the vicinity of the northern Solomons was reached, and continuous and furious squalls were ex-

perienced almost every night, he would refuse to take in sail till the very last moment, although Barry respectfully pointed out the risk of going on under such circumstances; for, besides the danger to the spars, the islands of the Solomon group were but badly charted, and the currents continually changing in their set; but to these remonstrances he turned an impatient ear.

'We must push her along through the Solomons,' he said one dark night to Barry, as the *Mahina* was tearing through the water under the hum of a heavy squall, quivering in every timber, and deluging her decks with clouds of spray, which, from there being a head-sea, leapt up from her weather-bow as high as the foretopsail. 'I want to get into Arrecifos Lagoon as quickly as I can, even if we do lose a light spar or two. I'm no navigator, as you know; but I know the Solomons as well as any man, for I've been trading and nigger-catching there for six years at a stretch—long time ago; and out here, where we are, we're safe—there's a clear run of six hundred miles, free of any danger. So the old skipper of the *Black Dog* used to tell me, and he knew these parts like a book.'

Presently, as he leant back on his elbows against the weather-rail, he added in an indifferent tone of voice: 'At the same time, I believe there is no cause for hurry; but perhaps Tracey has imbued me with some of his fears that some one else might get there before us, and either get the pick of the shell or perhaps skin the whole lagoon out altogether.'

Northward from the lofty verdure-clad Solomons the brig sped steadily onward, leaving behind her the fierce sweeping rain-squalls and the swirling currents and mighty ocean tide-rips, whose lines of bubbling foam, seen far away, often caused even the native lookouts to call out 'Breakers ahead!' and then she sailed into the region of the gentle, north-east trade-wind, till the blue mountain-peaks of Ponapé the Beautiful showed themselves upon the sunlit sea far to leeward.

Just after midnight, three days later, Velo, the Samoan, who was on the lookout, came aft to Barry and said, 'E manogi mai le fanua' ['The smell of the land has come'].

'Good boy, Velo,' replied the mate; 'keep a

sharp lookout, for on such a night as this, when the sea is smooth and the land lies low, we shall not hear the sound of the surf till we are right on top of it.'

An hour or two later Barry called Rawlings, for right ahead of the brig there was a low, dark streak showing upon the sea-rim, which they knew was the outline of one of the palm-clad islets on the south side of Arrecifos Lagoon. At daylight the *Mahina* ran through the south-east passage, and dropped her anchor in thirteen fathoms, close to the snowy-white beach of a palm-clad islet, on which was a village of ten or a dozen native houses. There was, however, no sign of life visible—not even a canoe was to be seen.

Immediately after breakfast the boats were lowered, and a brief inspection was made, not only of some of the nearest of the chain of thirteen islands which enclosed the spacious lagoon, but of the lagoon itself. The islands were densely covered with coco-palms, interspersed here and there with lofty puka-trees, the nesting-places of countless thousands of a small species of sooty-petrel, whose discordant notes filled the air with their clamour as Rawlings and Barry passed beneath, walking along a disused native path, while the two boats pulled along the shore. The village was found to be abandoned.

After examining the nearest islands and deciding where to build a station, the two white men returned to the boats, which then pulled out towards the centre of the lagoon. Half a mile due west from the centre of the south-east islet the deep-blue water began to lighten in colour, till it became a pale green, and the coral bottom lay clearly revealed at a depth of five fathoms.

'This is one of the patches mentioned by Gurden,' said Barry, after carefully taking bearings and studying a rough plan of the lagoon, which had been given him by Rawlings; 'let us try here first. Billy Onotoa, and you, Tom Arorai, go down and see.'

Two of the crew—short, square-built natives of the Line Islands—let go their oars, picked up their diving-sticks, and were over the side in an instant; but even before they were half-way down, the other natives in the boat, who were intently scanning the bottom, cried out that they could see 'plenty pearl-shell.' The truth of their assertions was soon proved by the two divers returning to the surface, each carrying two pairs of splendid shells as large as dinner-plates.

Rawlings's dark eyes sparkled. 'What do you think of that, Mr Barry?'

'If the rest of the patches in the lagoon have shell like that there is a huge fortune in it. Shell such as that is worth two hundred and fifty pounds a ton—a fortune indeed, even if not a single pearl is found.'

Rawlings breathed excitedly. 'But there are plenty—plenty. We can be certain of that. Let

us go back to the ship as quickly as possible, and get ready to start to work; and, seizing the steer oar, he bade the men give way, not with an encouraging word, but a savage oath.

Barry looked at him in astonishment and disgust combined. The man's usual smiling, self-complacent manner had disappeared, and he now seemed a prey to emotion, his face alternately paling and flushing with excitement, and Barry saw that his whole frame was trembling. By the time the boats came alongside the brig, however, he was restored to his usual self.

Barradas and Paul, the truculent-looking Greek boatswain, were both on the main-deck as Rawlings ascended.

'Well?' said Barradas inquiringly.

'It's all right,' answered Rawlings in a low voice, as if he feared to speak aloud; 'we shall be well repaid for all!—'

'Sh!' said the Greek warningly, as Barry's head appeared above the rail, and both he and the second mate turned away and busied themselves with their duties.

Telling the steward to see that the hands had dinner a little earlier than usual, Rawlings called Barry, the second mate, and the boatswain below, to discuss their future operations. In the hold were the two large boats which had been bought in Sydney, with pumping-gear and diving-suits, and it was decided to at once hoist the former out; though, as the water appeared to be so shallow, it was not thought likely the latter would be used, the natives asserting that they could get more shell by diving in their own fashion. Barry, from his previous experience of pearl-shelling in the Paumotus, was to have practically the entire control of the natives and charge of the boats, and the choice of a permanent anchorage was also to be left to him, and also the selection of a site for the shore-station, where houses were to be built by the native crew, so that they might live on shore when bad weather prevented them from diving. A quarter of a mile from where the brig lay anchored was a sandbank, covered with a low, dense scrub about three feet high; the beach was the haunt and laying-place of huge green turtles, and the scrub the nesting-ground of countless myriads of sea-birds. The spot at once suggested itself to Barry as a suitable place for 'rotting out'—that is, allowing the pearl-oysters to be exposed to the sun till they opened and could be cleaned. Here Rawlings, Barradas, or the Greek could receive the shell from the boats, spread it out to 'rot,' search for the pearls within, and then send it to the ship to be further cleaned, weighed, and packed in boxes, timber for making which had been brought from Sydney for the purpose.

But Barry, being of the opinion that a better anchorage could be found off the largest island on the western side, which was also well timbered, and would be best suitable for a shore-station, suggested that he should examine the place.

'It is twenty miles away, and will take you two days,' said Rawlings. 'Why cannot we stay where we are? Besides that, the big island is inhabited—so Gurden said—and the natives are a lot of savages. Why can't we make our station here on the south-east islet?'

'For several reasons, sir,' replied Barry. 'In the first place, we shall have to study our native divers. They will not be satisfied to live on this little islet here just ahead of us; for, although there are plenty of coco-nut trees on it, it is little better than a sandbank, and when bad weather comes on they will get dissatisfied and sulky, and when they become sulky they won't dive. Now, that big island—so Gurden told you—is much higher than any of the rest; it has not only plenty of coco-nuts, but groves of breadfruit as well, and there are several native wells there. If we remain here I am afraid that our men will be continually grumbling. Every now and then some of them will be running away; a breadfruit grove and plenty of fresh water would be attractions no Kanaka ever born could resist.'

'Very well, Mr Barry. Whatever you suggest I will do; only let us get to work quickly.'

'I think, sir, that after dinner I had better take one of the whale-boats, with four or five hands and two days' provisions, run down to the big island, and see what it is like.'

All these matters being arranged, Rawlings invited his officers to drink success to the future.

After dinner Barry picked five men to accompany him. Each man took with him a Snider rifle and a dozen cartridges in case of their being attacked by the natives. At two o'clock they left the ship, hoisted the sail, and stood away for the island, which was just visible from the deck.

Soon after Barry had left, Captain Rawlings entered the main cabin with Barradas, and told the steward to send the boatswain down.

For nearly half-an-hour they spoke together, now in low, now in excited and angry voices; and Mr Edward Barry would have been deeply interested in their conversation could he have but heard it, inasmuch as he was the chief subject.

'I tell you,' said Rawlings in a cold, sneering tone, as he leant over the table with his chin resting on his hands, and looking at Barradas—'I tell you that it will have to be done before we can take this ship into port again.'

'Mother of God!' said Barradas passionately, 'he is a good fellow, and I won't do it. No more such bloody work for me, Rawlings.'

Rawlings picked up his half-smoked cigar from the table, and puffed at it in silence for a few seconds; then he laid it down again, and his black eyes gleamed with suppressed fury as he looked at the Spaniard. But he spoke calmly.

'And I tell you again that no one of us will ever be safe. If he lives, something will come out some day; it always does, my brave and tender-hearted Manuel. You and I have been

lucky so far in smaller matters; but this is a big thing, and we have to look to ourselves.'

'Yes,' said the Greek, with savage emphasis. 'Mus' we all tree be hung like dogga because you, Manuel, have no pluck? Bah, you coward!'

'Don't you call me a coward, you dirty, ear-ringed Levantine thief!' and Barradas sprang to his feet. 'Take it back, you mongrel-bred swine, or I'll ram my fist down your greasy throat!'

'You cursed fools!' said Rawlings, with a mocking laugh, as he pushed Barradas back into his seat, and then turned furiously upon the Greek. 'What do you mean by insulting Manuel like that? You must take it back; and, unperceived by the Spaniard, he gave the man a deep, meaning glance.

The Greek, who had drawn his sheath-knife, dashed it down upon the cabin floor, and extended his hand to the second mate.

'I take it back, Barradas. You are no coward; you are brave man. We are all good comrade. I never mean to insult you.'

Barradas took his hand sullenly. 'Well, there you are, Paul. But I say again, I want no more of this bloody work;' and, looking first at Rawlings and then at the Greek, his dark, lowering face quivered. 'Come, let us understand each other. I swear to you both, by the Holy Virgin, that I will be true to you; but this man Barry must not be hurt. Sometimes, in the night, I see the face of that girl, and I see the face of Tracey, and I see and feel myself in hell!—

Rawlings's foot pressed that of the Greek.

'There, that will do, Manuel; let us say no more about it. I yield to you. We must take our chances.'

Barradas sighed with relief, and held out his hand to Rawlings.

'You won't play me false?' he inquired.

'I swear it,' said Rawlings, again pressing the Greek's foot, and then standing up and grasping his officer's hand.

'And I too,' said the Greek, extending his own dirty, ring-covered paw. 'As you say, he is a good man, and perhaps he can do us no harm. And we must all be good comrade—eh?'

And then, after drinking together in amity, the three separated.

Whilst Barradas was for'ard and Rawlings was pacing the poop, the ear-ringed Greek came along with some of the hands to spread the awning. As the seamen carried the heavy canvas up the starboard poop-ladder, the Greek walked up near to Captain Rawlings, who was on the port side, and said quickly, as he pretended to busy himself with the port-boat falls:

'Both of them will have to go—eh?'

'Yes,' answered Rawlings savagely; 'both of them. But Barradas must go first. We shall want the other to take us to Singapore. If I could navigate we could get rid of them both before we leave here.'

THE MANUFACTURE OF ALCOHOL FROM PAPER AND SAWDUST.

By C. AINSWORTH MITCHELL, B.A., F.I.C.



LTHOUGH attempts have been made from time to time during the last half-century to utilise wood-fibre of various kinds in the manufacture of alcohol, it has been reserved for Dr Simonsen of Christiania to work out a satisfactory process, and to prove experimentally that it can be carried out on a manufacturing scale.

Paper consists almost entirely of cellulose, which is also a principal constituent of wood-fibre and the basis of all vegetable cell-membranes. It is most widely known in its practically pure form of cotton-wool. Chemically it is closely allied to starch; and the problem which has recently been solved has been its partial conversion into sugars capable of being fermented by yeast.

In all methods of manufacturing ordinary spirit, the first stage consists in preparing a solution of such fermentable sugars; the second, in subjecting this to a process of fermentation under such conditions as to obtain as large a yield of alcohol as possible; and the third, in distilling the spirit from this alcoholic 'wash.'

Fermentable sugar occurs ready-formed in nature in fruits and in many plants and vegetables, notably the sugar-cane and beetroot; and in some distilleries the 'wort' is partially prepared from such sugar. In this country, however, the principal source of alcohol is the starch contained in malted or unmalted barley or other grain.

During the process of malting, which may be briefly described as a limited germination or sprouting, an active principle or enzyme, known as diastase, is developed within the germ of the barley. This enzyme possesses the power of acting, in the presence of water and at a suitable temperature, upon the starch in other parts of the seed or in other unmalted grain. Thus all that is necessary to obtain a solution of sugar from grain is to make a 'mash' of crushed malt, or of a mixture of malt and any cereal, with water, to maintain the liquid at a suitable temperature until the starch has been converted, and to drain off the extract, which will now be fit for fermentation.

In addition to utilising the action of diastase, it is possible to convert starch into sugar by treating it with water containing hydrochloric or sulphuric acid in a closed vessel at a high temperature. The resulting product is treated with lime to neutralise the acid, which has now effected its end, and the solution of sugar drained off and fermented. This process, technically known as 'acid inversion,' is in general use, often in conjunction with the malt conversion process.

Taking into account the close relationship between starch and cellulose, Simonsen's preliminary experiments were made with the object of determining to what extent it was possible to invert the latter in a similar manner. By varying the conditions he found that by treating cellulose (paper) in a closed vessel with water containing a very small proportion of sulphuric acid, good results were obtained at a pressure of about eight atmospheres. Under these conditions the yield of sugar was about 45 per cent., and a considerable proportion of the sugar could be fermented. The crude spirit had a characteristic smell of a somewhat tarry character.

Sawdust contains, besides cellulose, an allied substance known as lignin, which offers much more resistance than cellulose to the action of reagents; and it would seem from the results of Simonsen's experiments that only the cellulose contributed to the formation of alcohol in this case. The maximum yield of sugar obtained from sawdust was only about 20 per cent.; but, on the other hand, the inversion required only about fifteen minutes, or one-sixth of the time required by paper. Under no conditions was it found possible to ferment more than about 64 per cent. of the sugar obtained, the residue consisting of non-fermentable compounds.

Experiments which were then made on a manufacturing scale were equally successful in establishing the necessary factors for the inversion of sawdust in a large steam-pressure boiler. It was found that the amount of moisture in the sawdust was immaterial, provided it was taken into account in calculating the relative proportions of wood and water, which were preferably as 4 to 1. The most satisfactory results were obtained when the quantity of acid in the water was about one-half per cent., any considerable deviation from this amount causing a falling off in the yield of sugar.

Pine sawdust produced a larger amount of sugar and a purer alcohol than fir sawdust. As in the experiments in the laboratory, the yield of sugar usually amounted to about 22 per cent.; but in one experiment, in which birch sawdust was employed, it was as high as 31 per cent., calculated on the substance taken. The amount of sugar obtained from cellulose was 45 per cent., and a yield of 22 per cent. from sawdust corresponded to 45 per cent., calculated on the amount of cellulose contained in the wood.

In the third stage in the manufacture of spirit, the fermented 'wash,' which usually contains about 6 per cent. of alcohol, is subjected to a process of distillation, generally in what is known as a

column still. As alcohol has a lower boiling-point than water, the portion which first distils consists of a mixture of alcohol and water, in which the proportion of the former is much higher than in the original 'wash,' whilst the succeeding fractions contain less and less alcohol. By again distilling the first fraction a still stronger spirit is obtained; and by repeated distillation of those portions which pass over first, absolute alcohol can finally be reached.

In Simonsen's experiments on a large scale with sawdust, about 75 per cent. of the total sugar produced could be fermented, and the 'wash' contained between 1 and 2 per cent. of alcohol. This alcohol, when separated by fractional distillation from the accompanying water and other sub-

stances, was found to have an excellent flavour, and to be remarkably free from the usual impurities of commercial spirit.

In the best experiments 225 lb. of sawdust, containing about 20 per cent. of moisture, yielded about one and a third of a gallon of absolute alcohol. The sawdust used was invariably in a fresh condition, and the amount of alcohol capable of being obtained from decomposing sawdust has not yet been determined.

If, as seems highly probable, this ingenious method of utilising what is almost a waste product is generally adopted, the well-known sign of 'Wines from the wood' seems liable to be superseded by the more literal one of 'Spirits from the wood.'

'THE WHITE PIGEON.'

A DREAM OF SOUTH AFRICA.

By LAURA F. WINTLE.



HE General knew nothing about it—certainly not; he would have fainted if he had.

Jake is fifteen; I am seventeen. We live in the town with father; but father had gone off about some business across the border before the troops came, and I suppose he could not get back to us. At any rate he didn't, so Jake and I were alone.

Father had left us some money—'Plenty and to spare,' he called it. As days went on in siegetime we did not find it likely to be plenty; assuredly there would be none to spare.

Jake is lame. I can climb like a cat, and can ride anything that goes on four legs. When the siege began Jake was always lamenting because he was lame and could not volunteer as a soldier for the Queen.

'It is no use to lament,' I said; 'and, after all, you eat less than a strong man, and that is helping things considerably at this pinch.'

One day Jake came in and said the General was offering twenty pounds for a message to be taken through the Boer lines. No black runner would take it, as several had been caught and shot.

'Jake,' I said, 'I'll take that message.'

'Right you are,' he replied. 'I wish I'd your chance of such a lark; but, Marjory Daw, my dear, they'll never trust it to a girl.'

'I don't suppose they will,' I said; and I sat down quite disappointed.

Just then Mrs Perkins from next door came in. 'Jake,' she said—she thinks Jake is a saint because he's lame—'Jake, my dear, it is a pleasure to see your gentle face.—I'm thankful to see you sitting quiet, Marjory. I hope these awful times have taught you to consider your latter end, and to give up your harum-scarum, skip-jack ways.'

'I don't see why I shouldn't jump about when I am going to die as well as at any other time,' I answered. 'There's nothing wrong in exercise.'

That made her angry, and she talked and talked; while I sat there thinking how I should take that message.

When she was gone—and a good thing too—I said to Jake, 'I've made my plans.'

'What are they?' he asked.

Then I told him. It was then four o'clock. I should have a good meal, get some things I wanted, and dress for the journey. As soon as it was dark I would go through the British lines; that would not be difficult for one who, like me, was accustomed to go out stalking game. Once through the lines, I should go and lie down in a certain little dip in the veldt which we both knew. Meanwhile Jake was to go and undertake to get the message carried, saying he knew a runner who would take it; but he was to refuse to give any particulars. I thought they would probably give him the message, and watch him. If he got the message he was to go home, double it up into a little clip I made ready for it in our dog Dick's collar, and then he was to go walking about just inside the lines as if expecting his runner. Dick, I felt sure, would go scrimmaging about as he always did, and find me out. If he didn't, and the worst came to the worst, I meant to whistle; but that would be risky.

When I had the message safe, I would give two low notes like a night-bird twice. Then Jake was to whistle for Dick, and I should start off for the hills. Jake was to walk about for another good hour, as if still expecting his runner; and then he could go home and rest, and his part of the job would be done. If any one asked him after that, I said he could tell the truth,

but not till I had been gone a good hour, otherwise they would be running after me.

When I had finished the explanation of my plans, Jake asked me what I should do if they did not give him the message.

'Why, I shall have to come back at one o'clock—that's all; but, you'll see, they will give it to you. Now let's have a good tea.'

So Jake fried some bacon, and I boiled some eggs and made the coffee, and we had pickles, marmalade, and honey—quite a spread. When we had finished I put the coffee-grounds in a small tub with some hot water.

'What is that for?' asked Jake.

'Wait, and you will see.'

Then I went to my room, and got out my evening skirt—white nun's-veiling it was. I took off the pretty pale-blue sash, and almost cried as I did so. It was my best frock, and I knew I looked well in it. But there; I am not a fashionable girl, so I hardened my heart, rolled it up in a bundle, and plumped it into the tub with the coffee-grounds.

'My eye!' said Jake, 'if I had done that, now, would not there have been a shindy? I thought you loved that toggery as dearly as yourself; but there is no understanding a girl.'

"My eye!" is vulgar; that skirt is the only one that will suit for this. If I wear it white it will probably be my shroud. I am going to the store now; at the end of half-an-hour take out that skirt and dry it at the fire. If it does not get yellow enough, put in some more coffee.'

'One would think you were a major at least by your orders,' grumbled Jake, as he began to jogget about the tub with the skirt in it.

By dusk I was ready. I had on a soft gray felt hat, cycling knickerbockers under the brown-gray skirt, and a thin gray woollen blouse. I also wore tennis-shoes and wash-leather spats. I had a little bag of provisions and a water-flask strapped round my waist, so that my hands were free except for a stick which had an arm-loop to it. I had also a small revolver and a pair of glasses, and felt ready for anything.

I enjoyed getting through the lines unnoticed, and dodging the search-light by lying down sharp when I saw it coming; but when I had got to my hiding-place—oh, it was dull! Time went on, and no sign of Dick. I nearly went to sleep. At last, at about twelve o'clock, suddenly Dick rushed up and began licking my face. I got the message out of his collar, gave him a good kiss, and made the signal; and Jake whistled for him. Then I trekked off as hard as I could, going down flat as a pancake each time the search-light swept round, and then running on in the darkness.

I knew there were hardly any Boer pickets the way I was taking, as they never supposed any one would make for a high wall of rock

as I was going to do; still, I had to be very careful, and feared I should not get into shelter before morning. This fear made me hurry up, as I had no wish to be forced to lie flat in the burning sun the whole day through.

As it was I was almost too late, for the day was dawning as I arrived at the foot of my precipice. I rolled up my skirt tight, and swung myself up to a shady cranny that I knew, and then I had a few mouthfuls of food and some water, and went to sleep.

Jake meanwhile—he told me afterwards—had been shadowed by Major Grayhairs, as we called him, and had had quite a pleasing time: first by exciting his curiosity, and afterwards by telling him the truth when all was settled. Jake said he swore like anything, and positively ramped about. They had gone home; and Jake, to poke him up more, said, 'This is a Christian family, and we don't allow such profanity'—which was true, only there was no one in the house but Jake; and he often says 'The dickens!' himself.

The Major threatened to have Jake locked up.

'That's a new way of rewarding heroism,' said Jake. '"Quad" the chap's relations! What do you think Marjory would say when she returned?'

Major Grayhairs went off fuming, and Jake went to bed. He ought to have passed a sleepless night thinking of his dear sister, I told him; but he said, 'Rot! I slept like beans.'

I slept well too in the early morning in my little rocky niche; but about noon the big guns began booming; then I awoke, and, getting out my glasses, had a look round. I was very careful how I did it, though, for Boers have eyes like needles, and I had no fancy for being found.

There was not much to see, and I got deadly dull again waiting there. I snoozed every now and again; but I was afraid of oversleeping myself. I had packed in my little bag slices of bread spread thick with Bovril, which is a good way of keeping one's self going with little to carry. I drank all my water, and wanted more; but there was none, so I had to do without.

At last dusk came, and I clambered down and took my way carefully along among the rocks at the foot of the precipice. I was looking for a narrow watercourse, which was very difficult to find in the darkness, and was beginning to despair altogether when I managed to hit on it. I went up for some couple of hundred yards until it became quite narrow; then the going was so rough that I had to wait for dawn. I knew I was hidden from view, so I did not mind. When light came I found I was standing close to a big snake, which gave me a jump; however, he went his way into his hole, and I went mine.

The thing that bothered me most was want of water. I knew I could not get a drop until I had been climbing hard for several hours, for the watercourse was quite dry. The water-

course was really a great crack in the rock which went on for miles through the hills. I had discovered it long ago; but I had kept it as a child's secret, and I did not suppose many, if any, other people knew of it. I clambered on, feeling very thirsty, with two walls of rock towering above me on either side, and thought of the song about a flower that lived in a cranny and learned to grow straight and tall in consequence. I was feeling rather low, you see, as the flower was.

Happily, at last I reached what I was fond of calling 'Paradise.' At the entrance of a cave in the right-hand wall of rock was a deep, clear pool of water. Climbing over the rock outside was a vine which I had planted long ago, meaning some day to live in the cave like Robinson Crusoe. I blessed that fancy now, for the vine was thick with bunches of grapes, and I ate them with delight as I sat by the pool. Then I wished for Puck to keep snakes away; but as he was not there I went to sleep, and hoped for the best. I cannot stand snakes.

As evening fell I went on again; this time through the cave, which I knew would bring me out on the other side of the hill. I can assure you I went warily; for it struck me that the Boers might well be in the farther entrance. Such, indeed, proved to be the case. For the last four or five yards, before reaching the sort of grotto which made the other end of the cave, the passage rose about three feet high by two feet wide, with a trickle of water at the bottom, so that crawling along it was not pleasant going.

When I reached a more roomy spot, I waited and peered onward through the twilight. I saw the glimmer of the stars through wreaths of smoke which curled from a fire of brushwood outside the arched entrance. There was a strong smell of roast mutton, and I came to the conclusion that some one had been making a good supper.

Very quietly I crawled a couple of yards farther, and now became aware of three Boers stretched on the ground just inside the cave.

'Asleep,' I said to myself. 'But where is the Boer who sleeps with both eyes shut?'

Now the puzzle was, How could I get past them and out of the cave? Should I go back into the narrow tunnel and wait for morning? No; that was too damp an idea. There was a sort of crack, or rather shelf, along the side of the cave near the roof. Could I get along that? Possibly. At any rate it was worth trying.

Slowly I drew myself up to it, and then, lying full length on the ledge of rock, crept forward inch by inch. It was quite exciting.

When I got about level with the Boers I looked down and saw they were really asleep. Then certainly there must be a sentry. One of the Boers had evidently put aside a bit of roast

neck of mutton for to-morrow's dinner; it was just under the ledge of rock I was looking over.

'All is fair in war,' I said. 'That is probably a British farmer's sheep. Why should not I dine off it instead of leaving it for the Boers?'

I crooked a pin and fastened it to a piece of string, knotted the string to my stick, and then set to work fishing. Soon I hooked the mutton, and began to haul. Half-way up the hook came out, and down came the mutton bang on the nearest Boer's head.

I lay low and listened. It was not quite drawing-room conversation that began after that. All three Boers started up, and the mutton-bumped Boer abused the other two, and they swore he had a nightmare.

Then the sentry came and declared that, if they could not sleep, he could; and as the other two who had been disturbed took his part, it ended in the poor bruised Boer having to watch outside while the others snored. I was sorry for him; but it is the way of the world.

Now it struck me very forcibly that I had not mended matters for myself, for the new sentry was irritated and likely to be wide awake, so I should have a job to get past him. At any rate he must be left to cool down. Meanwhile I again turned my attention to the mutton. I felt I really must have some of that mutton; so, when once the Boers were asleep, I began fishing again. This time I was very careful and steady, and managed my haul all right. I cut off a slice and proceeded to eat it. It was beautiful! I had some more; then I cut off a chop and packed it up for future use.

Now came the time to get out of the cave. I crept along the shelf to the entrance; but there sat the sentry, looking as cross as two sticks, and anything but sleepy.

What could I do? Happy thought! There was the remains of the mutton! I threw it at one of the sleepers. Yells followed, and in darted the sentry. Now was my chance! I slipped down like a cobra, and scuttled.

I expected they would see me; but they didn't. I got safe away behind some rocks. I saw the Boers' baggage-mule grazing below. For want of something better, I thought I would ride that. I crept up to it, not daring to stand erect. The mule was hobbled with a rope, and had a halter knotted round its head. I got hold of the halter, and dragged the animal along to some low bushes. There I got the hobbles off, and led it farther. I suppose the Boers did not trouble much about their mule, thinking it could not go far.

It was a clear night; but at last, when I had got beyond the range of their vision, I mounted.

If you want something agreeable in the way of riding, let me recommend a baggage-mule, with no saddle and only a halter for bridle; a mule determined to stay where he is, and not go your way. It was quite a holiday treat; but when he

did start, the speed of a locomotive engine was nothing to it ; and as morning dawned we arrived at the river.

I tied the mule to a stump where it could get at the water, and considered its fate. It could get a halter's-length of feed, and it had had a good deal to eat that night. If I did not come back, a Kaffir would be certain to find and take it. If I did come back, it would be important to know exactly where to find the beast. So I wished it farewell, and took to the river.

Now, I love swimming ; but there is nothing so exhausting as swimming in a rapid stream. I waded as far as I could, and then went jumping on on tip-toes, paddling with my hands. Before I started I unloaded the revolver, and put weapon and cartridges inside my hat. When it was really necessary to strike out, I came to the conclusion that a hat with a revolver in it is a weighty style of millinery, and I returned to my depth, and was meditating leaving my little snapper in the mule's charge when I saw an empty box floating down. I got to this, and it just gave me the necessary buoyancy ; so, by a tortuous course, I gained the farther bank.

Wet and wretched, I stumbled on, dripping, to a little thicket of scrub, and lay down for a good half-hour before I even had energy to eat that mutton. Here I reloaded my revolver, sat in the sun to dry myself, and then curled up and went to sleep. About one o'clock I woke, and did my hair, washed my hands, shook down my skirt, and made myself as presentable as I could.

I walked on to the farm of some people I knew, and got them to lend me an old pony, which I rode on to the British lines, where I handed over my despatches, but did not let out who had carried them.

'Would my messenger go back ?'

'Yes, if it was of importance.'

'Would he go that very night ?'

I thought of a night's rest at the farm ; but no, Queen and country first. Besides, there was that Satanic-tempered mule to be considered. So in two hours' time I was trotting back.

Then it was *da capo*—the other way on—as evening fell ! Box, river, mule ; and didn't that mule swear ! Oh ! it swore like a hungry gorilla. But it had to go where I wished all the same.

I can tell you one thing : it is all very well to go through a river at daybreak, and dry yourself afterwards in the sun ; and it's another thing to go through the same river in the chill of night, and have to ride a mule in wet clothes afterwards. But, as Jake says, 'One must not expect life to be all beer and skittles.'

Dry or wet, then, I rode along till I got near the entrance to the cave ; there I hid away among the rocks and waited for morning, as I did not wish to chance on the Boers again. When light came nothing was to be

seen of the Boers but a broken tobacco-pipe. Whether they had destroyed each other, like the Kilkenny cats, or whether they were seeking the mule, I did not know, and did not care. I set to work to crawl along the narrow passage out of sight lest they should happen round again. A clatter in the distance I did hear, but no one saw me ; and thankful I was as the day grew hot to rest in the sun by the pool at the other end of the cave. Going down the watercourse was easy work ; still, by the time I got to the veldt I began to think that if I had been broken on the wheel my poor dear bones could not have ached more.

As darkness fell, once more I crouched down in the hollow and called the night-bird's cry. Then Jake whistled, and I got up and stumbled on over the grass.

What happened next I hardly remember. There were shouts and shakings of hands, and Jake and Major Grayhairs almost carried me home, where I gave my message to the Major ; and Jake made some tea, which I drank, and then went to bed.

Now, when you tell a story, I know you are supposed to put a grand ending to it ; but I have nothing grand to tell you. Nothing more came of all this except a certain amount of bother, because of the folly of mankind.

Now, what a man wants in a wife in South Africa is a woman who can cook and do house-keeping on week-days and dress in fine feathers on Sundays to keep up his self-respect. Nevertheless, just because I went careering across the country, lots of silly men wanted me to marry them, which put me out of patience. However, I kept my temper, and told them I had no thoughts of settling ; but they were not pleased, which was 'hard on a fellow,' for I never wanted them to come bothering me.

Major Grayhairs says I am very sensible, and he does not think of settling at present himself. When he said that, Jake whistled. Jake is a tiresome boy.

God Save the Queen.

THE BUTTERFLIES.

The butterflies, like pansies, freed
From earthy ties, make airy sport ;
They dally with the wistful weed,
Or to the meadow-queen pay court.

The butterflies—like thoughts of mine,
Forgetful of their lowly birth—
Are brave in all the summer shine
And merry in the moment's mirth.

The butterflies and I must go.
Ah, well ! To-day has yet to pass ;
And we are quite content to know
The blue skies and the sunny grass.

J. J. BELL.